
Two New Species of *Tropaeolum* (Tropaeolaceae) from South America

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ABSTRACT. Two new South American species of *Tropaeolum* L. (Tropaeolaceae), *T. slanisii* Bulacio from Salta, Argentina, and *T. kieslingii* Bulacio from Tarija, Bolivia, found during a revision of the genus for the Flora of Argentina, are described, illustrated, and compared with related species. Both new species belong to *Tropaeolum* sect. *Tropaeolum*, which is characterized by the strongly heteromorphic petals, usually ciliate on the margins, and the entire or more or less deeply incised leaf blades.

RESUMEN. Se describen, ilustran y comparan dos nuevas especies de *Tropaeolum* L. (Tropaeolaceae), *T. slanisii* Bulacio de Salta, Argentina y *T. kieslingii* Bulacio de Tarija, Bolivia, descubiertas durante la revisión del género para la Flora Argentina. Ambas especies pertenecen a *Tropaeolum* secc. *Tropaeolum*, la cual se caracteriza por los pétalos marcadamente diferentes, ciliados en el margen y las láminas de las hojas enteras o más o menos divididas.

Key words: Argentina, Bolivia, IUCN Red List, South America, Tropaeolaceae, *Tropaeolum*.

The Tropaeolaceae are widely distributed in the temperate and subtropical lowlands of South America from Mexico to Patagonia, but their highest diversity can be found in the intertropical Andes (Sparre & Andersson, 1991). *Tropaeolum* L. has been treated with ca. 110 species, 78 of which are principally tropical taxa and 29 of which are primarily temperate (Berry, 1992; Andersson & Andersson, 2000; Watson & Flores, 2010). Recent molecular phylogenies support *Tropaeolum* as a single genus of two sections, sections *Tropaeolum* L. and *Chilensia* Sparre, and smaller segregate genera such as *Magallana* Cav. and *Trophaeastrum* Sparre have been submerged in its synonymy (Andersson & Andersson, 2000). Fourteen species of *Tropaeolum* were previously listed for Argentina (Zuloaga et al., 2008), and the description of one of the new species from Salta brings the total to 15. Most *Tropaeolum* species are fleshy vines with twining petioles and are easily distinguished by having peltate leaves and flowers with a calycine spur, five clawed petals, and eight

stamens. The fruit is usually a 3-lobed schizocarp, and each carpel has a single seed.

During the study of the Tropaeolaceae for the Flora of Argentina, with plant material reviewed from South and North American herbaria (BAB, CORD, CTES, LIL, LP, MERL, SI, US), several specimens of *Tropaeolum* could not be identified to species. It should be mentioned that many trips to the countries were made to the localities where the distinctive material was collected and to similar adjacent areas in Argentina and Bolivia, but additional plants were not found. Further examination indicates that the specimens do represent new taxa, and they are described below as new species. By their bioform, *T. slanisii* Bulacio and *T. kieslingii* Bulacio both belong to *Tropaeolum* sect. *Tropaeolum*. This section is characterized by the petals being strongly heteromorphic, usually ciliate on the margins, often serrate, but not emarginated. The leaf blades are either entire or more or less deeply incised, although the central lobe is incised to a depth less than four fifths of the blade (Andersson & Andersson, 2000).

1. *Tropaeolum kieslingii* Bulacio, sp. nov. TYPE: Bolivia. Tarija: De Tarija a Narvárez, 2000–2500 m, 19 Mar. 1982, R. Kiesling, O. Ahumada, A. G. López & A. D. Rotman 3741 (holotype, SI). Figure 1.

Haec species *Tropaeolo meyeri* Sparre similis, sed ab eo petalis omnibus integris superioribus biauriculatis 7–10 × 3–5 mm, inferioribus acutis breviter mucronatis atque fructu globoso pubescente distinguitur.

Annual climbing herb; stems puberulous, with yellowish white indumentum. Leaves glabrous, marginally peltate, petioles 2–5 cm; blade light green, suborbicular, 1.8–3 × 2.5–4 cm, 3- to 5-lobed, lobes acute, entire or sometimes the upper ones 3-lobate in the middle, mucronate, somewhat cordate or truncate at the base, peltate. Flowers solitary or in pseudo-racemes, pedicels ca. 2 cm. Calyx glabrescent, yellow, bilabiate, lower lobes larger than the upper ones; calyx spur 10–15 mm, funnelform, yellow with purple veins, straight or slightly recurved at the apex;



Figure 1. *Tropaeolum kieslingii* Bulacio. —A. Flower. —B. Fertile habit. —C. Upper and lower petals. —D. Stamen. —E. Pistil. —F. Fruit. Drawn from the type R. Kiesling *et al.* 3741 (SI).

corolla yellow, both lower and upper petals being entire, lower petals lanceolate, acute, briefly mucronate, cuneate, upper petals 7–10 × 3–5 mm, with elliptic, unguiculate, biauriculate lobes. Fruit a

pubescent schizocarp, with mixed indumentum, long trichomes moderately dense, yellowish white, short glandular trichomes, red-brown, 3 mericarps, 6–10 mm, globose, dark colored at maturity.

Habitat and distribution. *Tropaeolum kieslingii* is known only from the type collection from Tarija, Bolivia. It was collected from montane rainforests at ca. 2000–2500 m.

IUCN Red List category. *Tropaeolum kieslingii* is known only from the type specimen, so there is not enough information about its geographic distribution or population status. Therefore, it is not possible to assess its risk of extinction, and it must be included in the category DD or Data Deficient, according to IUCN Red List criteria (IUCN, 2001).

Phenology. *Tropaeolum kieslingii* was collected both in flower and in fruit in March.

Etymology. The specific epithet honors Roberto Kiesling (1941–), a distinguished specialist of Cactaceae from Argentina who collected the type material of the new species.

Discussion. *Tropaeolum kieslingii* is distinguished by both lower and upper petals having entire margins. The upper petals are elliptic, obtuse, and biauriculate; the lower petals are acute and briefly mucronate, with a cuneate blade. *Tropaeolum kieslingii* appears to be closely related morphologically to *T. meyeri* Sparre, collected in the Argentine rainforest. The two species can be distinguished by the characters in the following key couplet.

- 1a. The 3 upper and lower petals with entire lobules; upper petals biauriculate, 7–10 × 3–5 mm; lower petals acute, briefly mucronate; fruit a globose schizocarp, pubescent. *T. kieslingii*
- 1b. The 3 upper and lower petals with divided lobules; upper petals not auriculate, 5–7 × 2–4 mm; lower petals flabellate, ending in long cilia; fruit a conical schizocarp, glabrescent. . . . *T. meyeri*

2. *Tropaeolum slanisii* Bulacio, sp. nov. TYPE: Argentina. Salta: Dpto. Iruya, San Isidro, márgenes del río Las Cuevas, 2880 m, 26 Apr. 2001, E. Bulacio & A. Slanis 817 (holotype, LIL). Figure 2.

Haec species *Tropaeolo seemannii* Buchenau similis, sed ab eo petalis superioribus 6.5–11 mm longis 3- ad 5-lobis mucronatis reflexis, inferioribus multilobis 14–17 mm longis atque calycis calcari 11–16 mm longo leviter recurvo ad apicem flavo venatione viridi distinguitur.

Annual climbing herb; stems glabrous to 3 m. Leaves marginally peltate, petioles 1.4–8.5 cm; blade light green, suborbicular, 1.2–5 × 1.4–6 cm, 3- to 5-lobed, lobes entire, emarginate, acute to sub-obtuse, briefly mucronate. Flowers solitary or in pseudo-

racemes, pedicels to 3 cm. Calyx glabrescent, bilabiate, greenish yellow, lower lobes notably larger than the upper ones; calyx spur 11–16 mm, funnel-shaped, with the tip yellow and green venation, slightly recurved; petals yellow, the upper ones reflexed, 6.5–11 × 3–10 mm, with 3 to 5 lobes, acute, mucronate, with a brief claw, the lower petals flabellate, 14–17 × 10–13 mm, multi-lobed, lobes acute, ciliate, multi-lobed. Fruit a glabrous schizocarp of 3 large mericarps, 8 mm, darkened at maturity.

Habitat and distribution. *Tropaeolum slanisii* can be found in San Isidro (Salta, Argentina) in hillsides and plains of riverbanks on the margin of a mixed forest at ca. 2800 m.

IUCN Red List category. *Tropaeolum slanisii* is known only from three specimens, so there is insufficient information about either its geographic distribution or population status. Therefore, it is not possible to assess its conservation status, and it must be included in the category DD or Data Deficient, according to IUCN Red List criteria (IUCN, 2001).

Phenology. *Tropaeolum slanisii* was collected both in flower and in fruit in April. It was noted with the common name of Guata-guata (Bulacio, pers. comm.).

Etymology. The specific epithet of the new species honors Alberto Slanis (1961–), a taxonomist, colleague, and friend, from the Fundación Miguel Lillo, who first collected *Tropaeolum slanisii* in 2001.

Discussion. *Tropaeolum slanisii* is closely related morphologically to *T. seemannii* Buchenau. The two species can be distinguished by the following key couplet.

- 1a. The 3 upper petals 3- to 5-lobed, 6.5–11 mm, mucronate, reflexed; lower petals multilobulate, 14–17 mm; tip of calyx spur yellow with green venation, 11–16 mm, slightly recurved; Argentina. *T. slanisii*
- 1b. The 3 upper petals 3-lobed, 10–11 mm, lobules obtuse, but not mucronate; lower petals 3-lobed, the middle lobe further 3-lobulate, and the lateral lobes multilobulate; tip of calyx spur dark brown or purplish brown, 15–18 mm, straight; Peru and Bolivia. *T. seemannii*

Paratypes. ARGENTINA. Salta: Dpto. Iruya. San Isidro, 6 Apr. 2000, A. Slanis & J. Tolaba s.n. (LIL); Camino a Campo Chiquero, en una pirca próxima a una plantación de maíz paralela al río Trihuasi, 26 Apr. 2001, E. Bulacio & A. Slanis 818 (LIL).

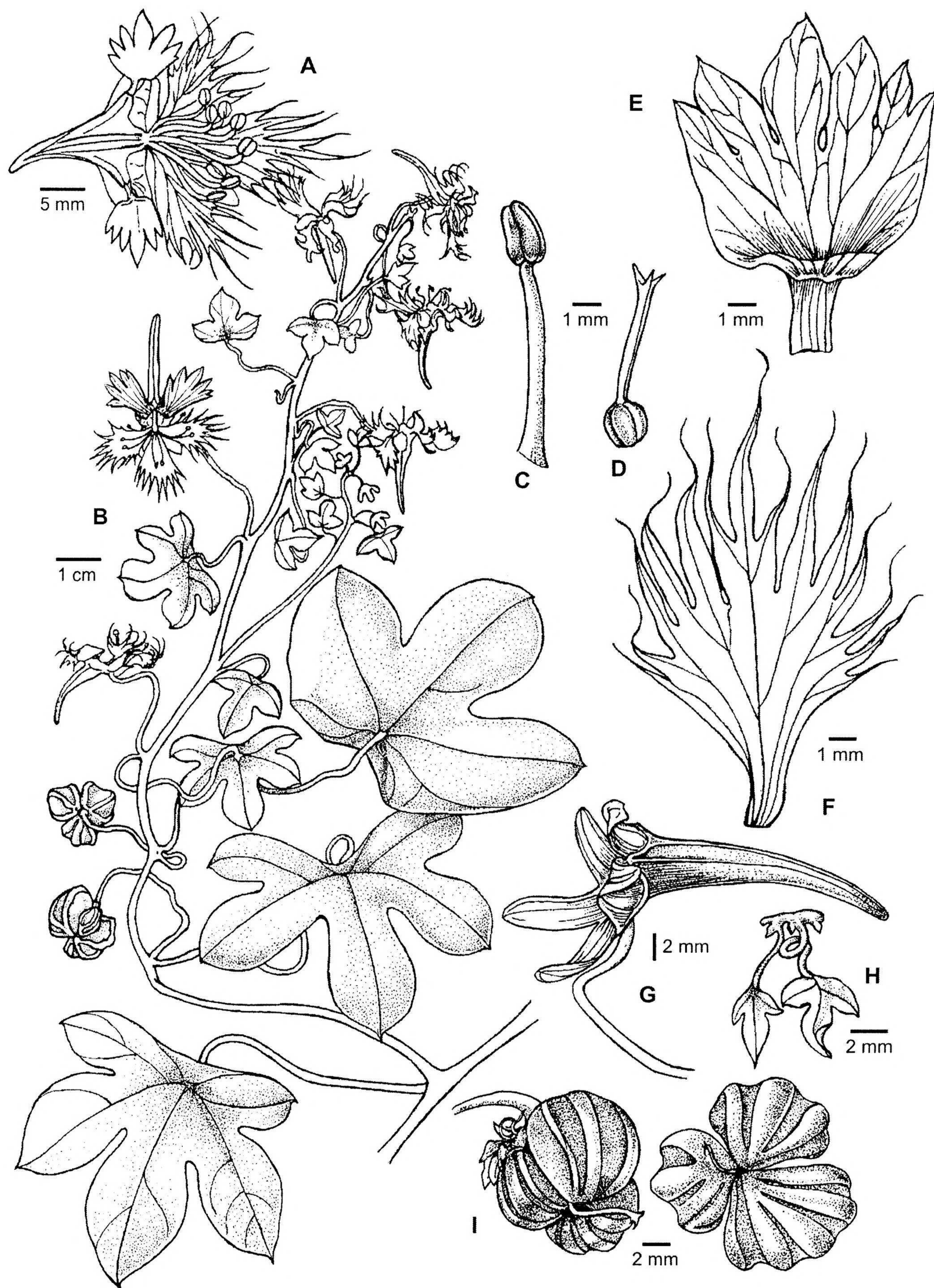


Figure 2. *Tropaeolum slanisii* Bulacio. —A. Dissected flower. —B. Fertile habit. —C. Stamen. —D. Pistil. —E. Upper petal. —F. Lower petal. —G. Calyx. —H. Peltate leaves. —I. Fruit. Drawn from the type *E. Bulacio & A. Slanis 817* (LIL).

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